

DRAFT V1.0

MINUTES OF THE 12th MEETING OF THE CEOS SPACE DATA COORDINATION GROUP FOR GFOI (SDCG-12)

**4-8 September 2017
ESA ESRIN, Frascati, Italy**

Tuesday, September 5

1. Welcome and Introductions

Frank Martin Seifert (ESA) welcomed everyone, noted the good progress with the baseline acquisition strategy and the current emphasis on user uptake of data, distribution, and exploitation.

GFOI Status Overview

Stephen Ward (SDCG Sec) reviewed the status of GFOI, including the main groups, Leads, and GFOI Office. GFOI is moving to 'Phase 2' which has a strong country emphasis and focus on data uptake and application. Stephen noted that SilvaCarbon funding is uncertain past 30 September 2018. Funding for the GFOI Office is guaranteed until the end of 2017, and there is a proposal for a multi-year extension for 2018+/Phase 2 which will potentially be settled by the end of the year. There is the potential for further funding from the UK, specifically for R&D. GFOI Alert has been proposed as a concrete SDCG activity for Phase 2.

GFOI's success with the global baseline coverage is likely to be highlighted at the upcoming GFOI Plenary. Moving into GFOI Phase 2, it is important that SDCG stays on top of the developments around the Data User Advisory Group (DUAG) which is a key component. Helmut Staudenrausch (DLR) supported the DUAG concept, noting that it is important to have a forum for gathering user requirements. The concerns are more around implementation. Gene Fosnight (USGS) noted that GFOI will have the MGD and DUAG, and feels they should be combined to ensure sufficient flow of user requirements.

Yves Crevier (CSA) noted that it is great to see GFOI taking ownership, making sure they structure themselves to address user needs. SDCG just needs to revise the support strategy to meet this new structure.

Stephen noted the positive response from WRI/GFW to SDCG's Early Warning proposal, though FAO remain unresponsive to SEPAL-CUBE collaboration offer. SDCG Sec funding is ending at CEOS Plenary, and USGS capacity will also be reduced. USGS pushing rationalisation of GFOI into CEOS structure to meet budgetary restrictions.

Sanjay Gowda (CEOS SEO/AMA) raised the issue of SDCG supporting SEPAL via the Data Cube, and at present it is not clear this is a good fit. Gene also noted that it needs to be clear that SDCG is offering good value.

Helmut noted that the MGD is the core of Germany's motivation for engaging with GFOI, and asked whether we could be working more closely with the MGD component. It was noted that Ake Rosenqvist (JAXA) is the SDCG representative within MGD Advisory Group, and will be able to work for closer integration. Gene agreed with the need to work closer with MGD team.

It is important that SDCG is engaged in GFOI efforts related to country engagement to remain an integral element of GFOI, and a concrete SDCG activity for GFOI Phase 2 (e.g. GFOI ALERT) could help. Changes to capacity will have a big impact on SDCG going forward, with strong continued support for the GFOI Office from Norway and Australia, and UK funding being considered.

2017-2019 Work Plan Outcomes Status Summary

George Dyke (SDCG SEC) noted that the SDCG 3-Year Work Plan is out of date, doesn't reflect GFOI Phase 2, and has a few 'dead' tasks. A revision of the Work Plan is required, and this could take place as a part of SDCG preparations for SIT-33 (April 2018), including in consideration of how SDCG, CEOS, and space data providers should approach GFOI Phase 2.

SDCG-12-1	Tom Harvey to add the link to the 2015 GFOI Early Warning Workshop report to the GFOI website.	COMPLETE http://www.gfoi.org/wp-content/uploads/2015/03/12th-Regional-Workshop-Report.pdf
SDCG-12-2	SDCG EXEC to follow up the idea of a JJ-FAST and GLAD comparison as part of GFOI ALERT	SDCG-13
SDCG-12-3	WRI to confirm the broadened scope of the Early Warning User Needs Assessment (EW-UNA) based on discussions with CEOS agencies at SDCG-12	Revisit at GFOI Plenary / SDCG-13 After further discussion with GFOI leads, a consultant coordinated by GFOI will lead the User Needs Assessment. Tom is currently working on the TOR with support from Rachael
SDCG-12-4	WRI to confirm the details of their February 2018 user forum (i.e. location, dates), as well as possible agenda time for the EW-UNA	COMPLETE After further discussion, the

		<p>GFW meeting in February will not be a good fit, both due to timing and to a restructuring of the GFW meeting. The timing of the forum is still TBD. The forum committee will develop a more detailed scope for the forum by the end of the year</p>
SDCG-12-5	Frank Martin to work with the GFOI Leads to ensure appropriate GFOI representation at WRI's user forum, and any sessions around Early Warning	October 2017
SDCG-12-6	Frank Martin to raise the possibility of GFOI R&D component support (e.g. GOF-C-GOLD) to the operationalisation of Early Warning approaches being studied, e.g. around early warning, inter-comparison	SDCG-13
SDCG-12-7	Ake to advise the MGD User Advisory Group of the on-going discussions around Early Warning, and report back on any reactions, interest, and potential next steps	SDCG-13
SDCG-12-8	Helmut to identify what he sees as EO gaps in the MGD, and Ake to follow-up in his role as MGD AG CEOS rep	<p>COMPLETE</p> <p>Helmut flagged reflection of Sentinel-1 and 2 in chapter 4, and better linkage between "Earth Observations" MGD text and the tools and actions that are suggested in REDDCompass</p>

2. Baseline Global Observation Scenario

Session Overview and Core Mission Status: Sentinel-1 and -2

Frank Martin reviewed the status of baseline acquisitions, noting that at this point SDCG can confidently say that global coverage has been achieved with Landsat and Sentinel. He noted

that the Sentinel-1 constellation is providing increased coverage over forest and agricultural areas in dual-pol (from 10% up to 50%). The Sentinel-2 GRI is expected early 2018.

Data access via Sentinel Hub is growing rapidly. Helmut asked if we could have a report on the Copernicus Global Land Service activities in future. Michael Berger (ESA) noted that he can also stress the need for Copernicus GLS during his secondment at DG-GROW.

Core Mission Status: Landsat

Gene presented a Landsat summary. Landsat-7 expected to operate until 2020, hopefully Landsat-9 will be operational by that time. Landsat-8 has been acquiring all descending day-lit land scenes, and ascending day-lit scenes over Alaska and Greenland are planned. Gene reviewed the status of Landsat Collections, reviewing the different Tiers of products available. He noted that they are re-collecting tapes from ground stations globally, with 4 million new scenes added to archive. This data will likely be Tier 2 due to a limited ability to make atmospheric corrections.

Landsat-9 will essentially be a rebuild of Landsat-8. Landsat-10 is still in design stage, and this is a good period to provide feedback and suggestions. One of the critical design decisions will be the inclusion of bands to generate optimal surface reflectance products.

Core Dataset Status: ALOS-2 PALSAR-2

Ake presented a status update on ALOS-2 as a core data set for GFOI, noting that 25m global mosaics are being provided, and a JERS-1 global mosaic has also been added. JAXA have now also produced mid-90's JERS-1 tropical region mosaics.

Yves asked what ARD means to JAXA, and Ake confirmed it is the same as in CARD4L PFS. Geometrically and typographically corrected using SRTM. These are however mosaics, which the CARD4L PFS doesn't specifically address.

Ake noted they have received positive feedback on this product from developing countries because it is easy to use, and can be ingested into a GIS platform and used without any further geometric corrections. Generation of mosaics is expected to continue in the future, at least until there is some change to data policy.

Ake noted that the ALOS forest-non/forest mosaics can be found here: http://www.eorc.jaxa.jp/ALOS/en/palsar_fnf/fnf_index.htm.

COVE Report on CBERS-4 Coverage

Brian Killough (CEOS SEO) noted that the CBERS archive is now connected to COVE. This appears to show coverage over Brazil, west Africa, and parts of the Middle East. He provided a demo of the new coverage analyser tool in COVE. This tool is connected to archives, shows actual acquisition frequencies, links to archives, and browse images. He noted that ALOS and CBERS archive connections could be added, so long as API access to catalogue data is available.

Discussion

Helmut raised how to communicate the success that CEOS has had in coordinating global coverage, in particular outside of the community, and it was agreed to follow-up.

SDCG-12-9	Gene and Frank Martin to complete the baseline coverage report for 2016-17	End September for Plenary deadline
SDCG-12-10	Brian's team investigate including SPOT 1-5 World Heritage datasets in coverage analyser. Contact CNES (Cecile Vignolles) to inquire about API for SPOT World Heritage collection	SDCG-13
SDCG-12-11	SDCG Sec follow up need to improve communication of GFOI achievements (with Barbara @ GEOSEC) and investigate other opportunities (CEOS Plenary, FAO, GFOI Plenary). Also follow up flyer/1-pager on coverage, tools, archive reports. Write in such a way that publishers/space news might pick up the news.	October 17

3. Space Data Services

Brian reviewed the status of space data services tasks. Anssi Pekkarinen (FAO) asked which countries did not prefer cloud computing, and Brian noted that some are hesitant to use US-based providers like AWS and Google, for example Vietnam has chosen to install their own system. Anssi noted that they also hear political and security concerns from countries, though it is not clear that cloud infrastructure security is lessor. Jonathan Ross (GA) noted that there are sometimes national pushes to develop local technology over multinational cloud computing solutions.

CEOS Data Cube

Brian noted that his team are seeing uptake in a number of countries and application areas, and that the growing [Open Data Cube](#) community of contributors is starting to develop, and engage users in a number of contexts. The key to stimulating Data Cube applications is the availability of ARD. Brian's CEOS Data Cube team are focused on capacity building and country engagement.

Brian reviewed his plans for to have the Data Cube in 20 countries by 2022 (the 'Road to 20'), and noted that all the countries they have engaged with have been user pull, rather than pushing the Data Cube technology. He noted he has also been working over time to engage the World Bank, which is a slightly different case where he has reached out to see how the technology could be applied to their ongoing projects.

There was a discussion around change detection, and in particular PyCCD which Brian's team has been working on. Ake noted that this approach would likely work well with SAR data in addition. Brian reviewed several other application examples, including some which Ake had worked on testing L-band SAR with the Data Cube around pre-processing and evaluation of the data. He noted that tutorials and demonstrations will be posted on the CEOS Data Cube page.

A brief discussion followed.

- Ake noted that more Data Cube demonstrations would be helpful, perhaps including a descriptive paper. Brian would like to do a paper drawing on work of summer student on water detection.
- AMA has flagged the need for scientific validation of their products, and need a science lead to assist in this.
- Jonathon Ross (GA/CEOS CEO) suggested a case study of leveraging Data Cube in support of MGD tasks would be very helpful in highlighting how to use data cube for UNFCCC workflows.
- Anssi noted that what countries need is a system that can transparently produce forest change information for reporting, and at the end of the day it is up to countries to decide whether Data Cube can be used/which hosting approaches are acceptable. He asked about the process for updating the Data Cube with new data. It was noted that automated ingestion is possible provided API and ARD are available from data providers.
- There was a discussion around Early Warning and definitions, and it was noted that one of the first tasks of the GFOI Early Warning Task Force is a user needs assessment needs, and that requirements can be expected to vary significantly by user type. Generally there is a trade-off between confidence and timeliness, with some users preferring more frequent with more errors, and others preferring more accuracy (which generally means less frequent, and higher latency in order to collect corroborating acquisitions).
- Brian noted that pre-processed SAR ARD ends up being smaller than Landsat once unneeded components removed. The data volumes of SAR Data Cubes are smaller than expected (less than a Landsat cube).
- Anssi noted that at present they are spending about \$2000-3000 a month for SEPAL hosting on AWS with more than 100 users, and Sanjay noted that their spend was about the same for their pilot Data Cubes.

ALOS-2 ScanSAR Data Provision

Ake reviewed the ALOS-2 ScanSAR product specification on behalf of Shinichi Sobue. Brian asked about country limitations and whether they would expand the number of countries where the products will be available, and Ake noted that with time perhaps more will be added. He also noted that for testing, they can get data from anywhere. Brian welcomed this step of release of L-band data which allows the potential to be explored for more use cases and more users.

Yves asked about how Brian will address licence constraints, noting that they may want to use the same approach for RADARSAT-2. Brian noted that the ScanSAR data will be released to them by JAXA for testing, but that there currently isn't a more general approach.

SDCG-12-12	Brian to work with Ake to evaluate the ScanSAR data samples generate a couple of demo products for the ScanSAR data; then send a letter of thanks.	December 17
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4. Data Coordination Topics

Erik Lindqvist (FAO) presented remotely on SEPAL, reviewing the work they have done since GFOI Plenary in Vietnam progressing SEPAL 2.1. He noted that they have included imagery from Planet and DigitalGlobe, taking the Collect Earth functionality and putting it inside SEPAL. This works on any data stores they can link to via WMS from within SEPAL. Planet is providing quarterly composites, and DigitalGlobe best base map. Using this data via a WMS is the best way to utilise the imagery without having to 'own' and download the data.

At present SEPAL has 442 active users globally, with 2TB of user data in active storage on the system. At present the team are investigating collaboration with the Forestry TEP.

Brian asked about a few technical topics.

- He asked whether bfast and bfastspatial is being used in R, noting that his team is considering converting this from R to Python and exposing it via the Data Cube API. Erik noted that it is being done in R, and that the trick is parameterising the model, which can take some time. He noted that data availability is also a factor in implementation and training, and Brian suggested they could select some common areas to focus on.
- It was noted that the training data can either be user provided, or generated by users with online tool, and then used with the classifier.
- Brian asked about the pixel data selection – best pixel, do not exceed, or best side – and Erik noted they are using the data as a weighting mechanism.
- Ake asked about the Planet data, and Erik noted they have been trialling their quarterly global best price base map which is served on a map server accessed via API. They are still using this to access individual scenes, but best value for users was thought to be use the base map, and for this function, it works really well as a source of reference data. They are still working image registration issues, and colour correction issues, but Planet are responsive and addressing these issues.
- Ake asked about Planet's radiometry, and Erik noted that it is currently TOA, which they are working to improve upon. They have both analytic and visual products.
- Ake noted the increased number of processing level options for Sentinel-1 data, and that it is no faster and easier to access the data.

GFOI Office and Phase 2 Overview

Anssi provided an overview of the GFOI Office, noting that there are seeing good results from Tom Harvey's efforts. GFOI Phase 2 is structured around five coordination mechanisms: country needs, joint work planning, collaborative implementation, fostering a network, and improved external communications. They plan to continue in Phase 2 with four components, where the Space Data component becomes the Data Coordination component.

Anssi reviewed the plans for the data component, noting that its objectives include support acquisition, availability, accessibility, and capacity for countries to use remote sensing and other datasets for monitoring. There will be an additional user focus in Phase 2, working to bring a comprehensive user perspective. GFOI has identified a gap between the training being provided and actual user needs.

A brief discussion followed.

- Jonathon asked about the Chair of the DUAG, and whether it will always be a REDD+ user representative, and Anssi noted this hasn't been decided yet. He welcomed SDCG comments on this via the Office.
- Frank Martin asked about timeframe for the DUAG, and Anssi noted the Chair is to be decided early next year.
- Helmut asked about role of Moja.global, and Anssi noted he was not that familiar. The main element is the FLINT platform, and this is something the IPCC does follow. He noted that Moja.global brings expertise on GHG inventories as a whole.
- Stephen asked about the membership of the DUAG, and Anssi noted the list is still very preliminary with no ideas for the Chair.
- The type of advice to be provided is still being discussed, whether it will be wholistic advice or deeper technical expertise. The overall objective is to bring the data users closer to the data component.
- The scale of the DUAG Advisory Group remains an open question, balancing between expertise and representation.
- Adam Lewis (GA) noted that the CEOS support to the DUAG would need to be discussed and confirmed once plans are better defined.
- Gene noted he is concerned the DUAG could lead to stove piping of the user feedback and reduce connectivity between the components, and suggested the DUAG should try and address this issue.
- Yves noted that the representation and composition of the DUAG needs to be considered closely, and that it doesn't currently appear to address the development of thematic requirements to be translated into observing requirements by SDCG.

Anssi summarised the FAO Capacity Building work in support of the UN-REDD program, noting that they are currently supporting more than 25 countries, and are seeing significant results. He reviewed the current and future areas of work (2016-2020).

Web portal development is increasing transparency and information flow to the general public, and OpenForis tools will go online as an integrated package in 2018-2019. They are working towards FRA 2020, which is based on country reports by officially nominated correspondents. To date 165 countries have nominated. In addition regional and global remote sensing will be used to provide an independent reference. FRA2020 is working towards increased transparency, eases reporting via new tools, focuses on added value for countries that helps the communicate forestry issues to local decision and policy makers, and aims to provide a flexible tool.

The first draft of the online reporting platform is currently being developed, and is expected in March. This is a new FRA platform, with several components to increase transparency. Information will be displayed in a way that is easy to understand, comparable (e.g. between countries), and support communication. Further geospatial data layers (e.g. satellite data) are a longer-term goal. Scoping and expert consultation took place in June, and the target for a global launch is February 2018. At present, they only have mockups of the portal, and are seeking funders to develop the platform. He expects it will be modelled after the Canadian platform <http://forests.foundryspatial.com/>.

Helmut asked if there was a linkage to the [Bonn Challenge](#), and Anssi noted that at present countries don't have the data, and this is not yet part of the FRA 2020.

Discussion: Space Agency Approach to GFOI Phase 2

Gene reviewed the way forward for SDCG including a revisit of the three elements of the SDCG 3-Year Work Plan. He stressed the need for a linkage between CEOS development efforts under Element 2 (Space Data Services), and related GFOI R&D efforts.

Activities of LSI-VC overlap significantly with data coordination efforts, and also provides a better connection with product developers. While engagement with GFOI provides a bridge to user requirements. Interoperability is a key question for future work, for example by looking at the kind of work Johannes was doing for GOFC-GOLD utilising both SAR and optical data to derive products.

The leadership SDCG needs to be robust, and there is some risk around USGS involvement with GFOI. Landsat-9 has been funded, but this has come at a cost to internal USGS science activities for the next 2-3 years.

Gene noted that the SDCG 3-Year Work Plan needs updating.

A brief discussion followed.

- Stephen noted that now is the time for SDCG to get set for GFOI Phase 2 as the documentation is finalised. We should also take stock of leadership and capacity changes.
- Frank Martin raised the topic of other CEOS agencies stepping up to Co-Chair SDCG.
- Helmut noted that resource constraints will have to be reflected in the next phase of SDCG, e.g. organising the GFOI Data component from within Office, with separate CEOS-related tasks at LSI-VC level. Stephen noted that indications are not favourable for Office funding of the Data component.
- Yves suggested that this transition period should be about understanding how to modernise SDCG in the context of GFOI Phase 2, as well as what CEOS is requesting.
- Helmut noted he would like to better understand the GFOI Office staff plan, including the coordinator, support staff, consultants (e.g. communications), component and project management, and potentially component managers.
- Ake has raised SDCG SEC resources with JAXA, and they said they would look into it. Osamu Ochiai is also expected to take over the CEOS lead from Masanobu Shimada.
- Stephen noted that the concept for the annual SDCG meeting cycle would be a joint meeting with LSI-VC and GEOGLAM in conjunction with the SIT Technical Workshop, and then offset six months by a meeting with GFOI Plenary. In future there could be more integration with LSI-VC, but for the moment this is not really being considered.
- Gene noted that the GFOI Early Warning Task Force meeting showed the importance of having user feedback.

Joint Meeting

Stephen reviewed the history and rationale for the joint meetings with LSI-VC and the CEOS ad hoc WG for GEOGLAM, noting that there is some risk of losing control by linking to other groups. He reviewed the broad agenda for the meetings.

Gene suggested that making SDCG the 'LSI-VC forest team' is probably not a good idea, and suggested keeping a separate coordination group. Steven Hosford (CNES) noted that the SDCG is renewed as a CEOS ad hoc Team every year, and we should consider the deadline for when we'd have to make that request.

Yves raised the question of the GFOI Phsae 2 context, and how this interplays with the CEOS commitment to supporting GFOI. Anssi noted that the intention is that there won't be any disruption to the GFOI Office during the transition to Phase 2. Yves noted that there is value in having a thematically focused forest coordination group within CEOS, but that there remains a question about how the GFOI components will interact in Phase 2. Having the SDCG group allows the addressing of needs for new datasets, assimilation, etc., and this message can then be transmitted to the Data component within GFOI.

Helmut noted that CEOS has already committed to coordinate the Space Data component of GFOI, whether via SDCG or some other structure.

Adam suggested that the current work of this group could be embodied in the GFOI DUAG, though the proposed DUAG membership is not currently compatible with this idea, with only two CEOS representatives. He suggested that we would need to see how the DUAG is executed before considering closer coordination. He also noted that the DUAG appears to have a narrow focus only on data supply, where SDCG addresses GFOI R&D needs, as well as space data services.

Stephen stressed that it would be up to CEOS Agencies to decide whether or not they want to continue to support GFOI in this way. Frank Martin noted there is a commitment from ESA to support GFOI.

The fact that GFOI is looking for a sustainable model should be seen as a positive, recognising that a new relationship between the two groups needs to be defined. Frank Martin suggested that the global baseline coverage has been addressed. Topics like ARD, services, and interoperability can be done within LSI-VC, and R&D support from the space agencies could be done within the GFOI R&D component. However under this model, the space community is losing contact with the forestry user community. The GFOI linkage to climate also plays well with space agencies as climate is one of the most important topics for space agencies in future.

Several discussion points were raised.

- Adam noted that the GFOI organisation structure is a statement of what a forest community wants, and CEOS should work to align its efforts along to those lines.
- Gene noted that engagement with the forest community key feature of this group, and of GFOI, and this is one of the key message to bring to CEOS.
- Anssi noted that the use of space data in the forestry community is increasing, and this is a very good moment to demonstrate the capability.
- Shaun Deacon (CEOS SEO/AMA) noted that some SDCG functions don't fit under LSI-VC, and this justifies a separate group. SDCG is much more user requirements focused than LSI-VC.
- Jonathon suggested that well developed requirements are a good criteria for success. Stephen suggested that these requirements, and the ongoing viability of the group are the two most important topics for the next six months.



Wednesday, September 6

5. Element 3 - Support to GFOI R&D

Ake chaired the discussion around space data support to R&D. He recalled that v3 of the SDCG support to GFOI R&D Strategy document was submitted to SIT-32 and the next version will go to SIT in April 2018. Ake noted also:

- Slow progress on SPOT-6/7 and Planet (action on SPOT will be closed);
- NovaSAR is delayed until November 2017;
- Some changes to the 17 R&D groups with UNSW withdrawn and CESBIO invited by CNES (Thuy LeToan group);
- Suggested adding inclusion of the Early Warning activity and seeking out relevant R&D capability from amongst existing (or new) groups;
- R&D Technical Progress report was released in March 2017 and is available on gfoi.org; a 2nd edition is foreseen for Q1 2018 and it was suggested this be included in reports to CEOS;
- New ESA contract for R&D support expected Q4 2017 as an open call for proposals; €500k for 3 years;
- Ake recalled the EI-3 document summary of R&D sites; and,
- Agreed that the Work Plan generally needs to be updated at the right time.

ASI

Anna Rita Pisani (ASI) reported:

- Three groups have requested CSK data; #5 and 6 acquisitions are ongoing; #10 (CSIRO) awaits contact from the PI;
- ASI welcomes further data requests using their accepted procedures; The 'Open Call for Science' started in Feb 2015 and includes land cover and vegetation.

CSA

Yves reported:

- Same delay with the CSIRO PI but Ake expects this to start soon;
- The forest archive for RADARSAT is potentially very useful and Yves wonders whether we might explore some user pull for utilisation of this; and,
- Significant RADARSAT-1 and -2 data is available for Vietnam Cube, and this will be offered via the SEO and VNESC.
- Yves noted that information on the Arctic Boreal Vulnerability experiment could be found here: https://above.nasa.gov/cgi-bin/pi_list.pl.

SDCG-12-13	Yves to provide info to SDCG SEC on the nature of the Radarsat archive available for use in Vietnam Cube	October 17
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CNES

Steven reported:

- Showed the summary of progress for the CNES supported projects;
- Pleiades support proposed to 11 groups; 5 have received data; 2 more underway; total of 12,649km²;
- Continued support foreseen at same level;
- SPOT World Heritage programme proceeding and should be added to the core data streams chart; and,
- Should look into COVE coverage analyser providing a coverage map.

SDCG-12-14	Ake to remind R&D groups that requests for data can be renewed	October 17
SDCG-12-15	CNES to follow up again with Airbus to see if they can help or be removed from the list of potential GFOI R&D data suppliers	November 17
SDCG-12-16	SDCG SEC to add SPOT World Heritage Programme data to the Core Data Streams chart	October 17

DLR

Helmut reported:

- TerraSAR and TanDEM-X both working well and going through 2022 perhaps;
- New HRWS bi-static mission is being defined;
- New AOs are expected and forest acquisitions ongoing;
- Future observation scenarios include forests and global DEM; and,
- 11 groups continue to be supported; DLR continues to welcome feedback from their work as the payback for the data.

SDCG-12-17	Helmut to share paper on TerraSAR TanDEM-X Global Forest Map when available	SDCG-13
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JAXA

Ake reported:

- 12 groups provided about 30 PALSAR-2 scenes each; and,
- New RA announcement for ALOS-2 expected in 2018/19. Coordination with GFOI objectives is possible.

Ake suggested that we should have a PI/R&D group meeting when the new ESA support is underway, which is needed for cohesion of the efforts and to support exchange of ideas. We also need the groups to report back in exchange for the data. ESRIN may be a good venue and CSA may also be interested.

SDCG-12-18	Co-Chairs to recommend NASA and ISRO do simultaneous L- and S-band acquisitions for forest monitoring studies	December 17
SDCG-12-19	Frank Martin to provide an update on Biomass	COMPLETE

NovaSAR & BIOMASS

Stephen referred SDCG to the presentation kindly provided by UKSA noting the launch of NovaSAR is now expected to be November 2017 with data being available around April 2018.

Frank-Martin noted that BIOMASS will be ESA's 7th Earth Explorer selected by ESA's Earth Observation Programme Board. It is based on global interferometric and polarimetric P-Band Radar observations which are essential to understand the Earth's carbon cycle. To be launched in July 2021

Thursday, September 7

6. Review of Joint Session Discussions

The following points were identified as being worthy for the report back to the joint meeting:

- For future joint meetings, we should have fewer parallel sessions and more technical substance in longer joint sessions. This may happen naturally next time; suggested we have splinters early and then longer joint topic sessions;
- SDCG should be in the formal loop for CARD4L specifications as should all related CEOS/GEO initiatives;
- SDCG will continue to ask CEOS and its agencies for prioritisation of ARD production for GFOI pilots in Vietnam and Colombia, and for the ALERT demo;
- SDCG is willing to look at application of HLS for Vietnam; we can arrange for the many R&D teams to look at the HLS data for their purposes;
- SDCG would like confirmation as to who in USGS will champion the MRI effort after Gene; and
- SDCG will appeal for new Co-Chairs and SEC capacity at SIT TW and Plenary.

SDCG-12-20	SDCG EXEC to confer on the use of SLC vs GRD for the CEOS radar ARD spec	October 17
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7. Review of Business and Closing Discussions

Stephen showed a draft summary of the outcomes of SDCG-12 for discussion:

- It was agreed that the GFOI ALERT meeting was extremely productive and with several agencies interested to support; the JJ-FAST/GLAD comparison is an obvious early target we can pursue (Stephen and Ake will speak with JAXA and Masanobu);
- The 2017 Baseline Coverage Press Release is worth pursuing with CEOS, GEO and individual agencies;
- Noted that Sentinel-2 ARD will not be available for other than Europe until 2018;
- It was agreed to hold an R&D event upon confirmation of new funding period from ESA - at ESRIN and/or CSA;
- There is broad Interest in seeking support for GFOI ALERT related R&D;
- The technical progress report will be updated Q1 2018 by Ake;
- CSA is willing to help populate Vietnam Cube;
- GFOI website holds Landsat, Sentinel-1, Sentinel-2 country acquisition reports for 70 countries. CBERS also available (INPE only); there is a new COVE Coverage Analyzer tool;
- Multiple Data Cube pilots underway – still pursuing Vietnam for GFOI demo, including GFOI ALERT. Taiwan is a new Data Cube, still being established;
- On Phase 2 of GFOI: the Data User Advisory Group is a major change and with capacity implications (2 SDCG representatives: Brian + 1 TBC); the CEOS representative to MGD AG is confirmed (Ake/JAXA);

- We need at least 1 new Co-Chair for SDCG, and based on current resources we will not have an SDCG SEC; we should confirm that USGS is 100% unable to extend or replace Gene as a priority;
- We should put a clear and direct request to Principals at SIT TW and Plenary for support; and,
- ESA is expected to be the new GFOI Lead for R&D.

On future meetings, the following was noted:

- GFOI Plenary (which would feature SDCG-13 and presumably the DUAG) has been agreed with Colombia for Q1 2018 - the weeks of 5 or 12 March in Bogota;
- SIT Technical Workshop will be hosted by EUMETSAT, the week of 10 September 2018;
- So a 'business as usual SDCG' (with or without LSI, GEOGLAM) would typically be the week of 3 September; and,
- We will need a (European) host that could accommodate several groups (ESOC, DLR, maybe the EC somewhere else in Europe).

SDCG-12-21	SDCG EXEC to formulate a plan to update the CEOS Strategy for GFOI (2011), as well as the SDCG 3-Year Work Plan. To be presented at SIT-32.	December 17
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APPENDIX A

Attendees

Organisation	Name
ASI	Anna Rita Pisani
CEOS SEO	Brian Killough
CEOS SEO/AMA	Sanjay Gowda
CEOS SEO/AMA	Shaun Deacon
CEOS SEO/AMA	Otto Wagner
CNES	Steven Hosford
CSA	Yves Crevier
DLR	Helmut Staudenrausch
ESA	Frank Martin Seifert
ESA	Michael Berger
FAO	Anssi Pekkarinen
FAO	Erik Lindquist (GTM)
GA	Adam Lewis
GA	Andreia Siqueira
GA/CEOS CEO	Jonathon Ross
JAXA	Ake Rosenqvist
SDCG Sec	Stephen Ward
SDCG Sec	Matthew Steventon
SDCG Sec	George Dyke
USGS	Eugene (Gene) Fosnight

APPENDIX B

Actions Record

SDCG-12 Actions

V0.2c

No.	Action	Due date
SDCG-12-1	Tom Harvey to add the link to the 2015 GFOI Early Warning Workshop report to the GFOI website.	September 17
SDCG-12-2	SDCG EXEC to follow up the idea of a JJ-FAST and GLAD comparison as part of GFOI ALERT	SDCG-13
SDCG-12-3	WRI to confirm the broadened scope of the Early Warning User Needs Assessment (EW-UNA) based on discussions with CEOS agencies at SDCG-12	October 2017
SDCG-12-4	WRI to confirm the details of their February 2018 user forum (i.e. location, dates), as well as possible agenda time for the EW-UNA	October 2017
SDCG-12-5	Frank Martin to work with the GFOI Leads to ensure appropriate GFOI representation at WRI's user forum, and any sessions around Early Warning	October 2017
SDCG-12-6	Frank Martin to raise the possibility of GFOI R&D component support (e.g. GOF-C-GOLD) to the operationalisation of Early Warning approaches being studied, e.g. around early warning, inter-comparison	SDCG-13
SDCG-12-7	Ake to advise the MGD User Advisory Group of the on-going discussions around Early Warning, and report back on any reactions, interest, and potential next steps	SDCG-13
SDCG-12-8	Helmut to identify what he sees as EO gaps in the MGD, and Ake to follow-up in his role as MGD AG CEOS rep	COMPLETE Helmut flagged reflection of Sentinel-1 and 2 in chapter 4, and better linkage between "Earth Observations" MGD text and the tools and actions that are suggested in REDDCompass
SDCG-12-9	Gene and Frank Martin to complete the baseline coverage report for 2016-17	End September for Plenary deadline
SDCG-12-10	Brian's team investigate including SPOT 1-5 World Heritage datasets in coverage analyser. Contact CNES (Cecile Vignolles) to inquire about API for SPOT	SDCG-13

	World Heritage collection	
SDCG-12-11	SDCG Sec follow up need to improve communication of GFOI achievements (with Barbara @ GEOSEC) and investigate other opportunities (CEOS Plenary, FAO, GFOI Plenary). Also follow up flyer/1-pager on coverage, tools, archive reports. Write in such a way that publishers/space news might pick up the news.	October 17
SDCG-12-12	Brian to work with Ake to evaluate the ScanSAR data samples generate a couple of demo products for the ScanSAR data; then send a letter of thanks.	December 17
SDCG-12-13	Yves to provide info to SDCG SEC on the nature of the Radarsat archive available for use in Vietnam Cube	October 17
SDCG-12-14	Ake to remind R&D groups that requests for data can be renewed	October 17
SDCG-12-15	CNES to follow up again with Airbus to see if they can help or be removed from the list of potential GFOI R&D data suppliers	November 17
SDCG-12-16	SDCG SEC to add SPOT World Heritage Programme data to the Core Data Streams chart	October 17
SDCG-12-17	Helmut to share paper on TerraSAR TanDEM-X Global Forest Map when available	SDCG-13
SDCG-12-18	Co-Chairs to recommend NASA and ISRO do simultaneous L- and S-band acquisitions for forest monitoring studies	December 17
SDCG-12-19	Frank Martin to provide an update on Biomass	COMPLETE
SDCG-12-20	SDCG EXEC to confer on the use of SLC vs GRD for the CEOS radar ARD spec	October 17
SDCG-12-21	SDCG EXEC to formulate a plan to update the CEOS Strategy for GFOI (2011), as well as the SDCG 3-Year Work Plan. To be presented at SIT-32.	December 17